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EXAMINER	
LEUNG, CHRISTINA Y	

ART UNIT	PAPER NUMBER
2633	10

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/931,643	SCHOFIELD ET AL.	
	Examiner	Art Unit	
	Christina Y. Leung	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *1,8,9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Double Patenting

1. Applicant is advised that should claims 1-17 be found allowable, claims 18-34 will be objected to under 37 CFR 1.75 as being substantial duplicates thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

In the instant application, independent claim 1 recites "A network device comprising:" in line 1 of the claim and claim 18 recites "A system comprising:" in line of the claim. However, the claims are otherwise identical, reciting the same limitations. Claims 2-17 and 19-34, which depend directly or indirectly on claims 1 and 18 respectively, also respectively recite identical limitations and are substantial duplicates of each other.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 7-11, 14-22, 24-28, and 31-34 are rejected under 35 U.S.C. 102(b) as being anticipated by McGuire (US 5,889,600 A).

Regarding claims 1 and 18, McGuire discloses a networking device or system (Figure 1) comprising:

optical switching logic (including switches X1-X4) coupled to a number of optical interfaces (such as the splitters shown in Figure 1 which receive signals from fibers 1-3) for sending or receiving an optical data stream over at least one optical fiber 1-3; and

routing logic (not explicitly shown in Figure 1, but transmitters 7 and photodetectors 8 interface to it) operably coupled to the optical switching logic and to a number of ports for routing information based upon a routing mechanism, wherein the optical switching logic and the routing logic interoperate to switch and route information for sending or receiving the optical data stream over the at least one optical fiber. McGuire discloses that the transmitters and photodetectors convert between electrical and optical signals and further discloses that electrical signals may be processed/routed in a lower layer of the system and may be transmitted to or received from the optical layer as necessary (column 1, lines 10-67; column 2, lines 1-9).

Regarding claims 2 and 19, McGuire discloses that the optical switching logic (switches X1-X4) is operably coupled to receive an incoming optical data stream from an incoming optical fiber (such as fiber 1) over an incoming optical interface and selectively pass the incoming optical data stream through to an outgoing optical fiber (such as fiber 4) over an outgoing optical interface or divert the incoming optical data stream for processing by the routing logic (such as through a photodetector 8)

Regarding claims 3 and 20, McGuire discloses that the optical switching logic comprises a demultiplexer (Figure 1 shows that the input fibers 1-3 are connected to splitters and filters F1-F4 that demultiplex the signals) operably coupled to demultiplex the incoming optical data stream from a number of incoming optical data streams received from the incoming optical fiber over the incoming optical interface.

Regarding claims 4 and 21, McGuire discloses that the optical switching logic further comprises an optical switch (switches X1-X4) operably coupled to receive the incoming optical data stream from the demultiplexer (i.e., splitters and filters F1-F4) and to selectively pass the incoming optical data stream through to the outgoing optical fiber over the outgoing optical interface or divert the incoming optical data stream for processing by the routing logic. Figure 1 shows an embodiment wherein output ports "e," "f," and "g" of the switches pass the optical data stream to one of the outgoing optical fibers 4-6, while output ports "h" of the switches passes the optical data stream to the routing logic.

Regarding claims 5 and 22, McGuire discloses that the optical switch comprises an optical add/drop fabric (transmitters 7 and photodetectors 8 add and drop optical signals respectively).

Regarding claims 7 and 24, McGuire discloses that the optical switching logic further comprises an optical receiver 8 operably coupled to receive the diverted incoming optical data stream from the optical switch and convert the diverted incoming optical data stream into incoming digitally formatted information for processing by the routing logic.

Regarding claims 8 and 25, McGuire discloses that routing logic is operably coupled to receive the incoming digitally formatted information from the optical receiver and route the incoming digitally formatted information based upon a routing mechanism. Again, McGuire discloses that electrical signals may be processed/routed in a lower layer of the system and may be transmitted to or received from the optical layer as necessary (column 1, lines 10-67; column 2, lines 1-9).

Regarding claims 9 and 26, McGuire discloses that the routing logic is operably coupled (via transmitters 7) to forward outgoing digitally formatted information to the optical switching logic for forwarding to an outgoing optical fiber over an outgoing optical interface. Figure 1 shows how an electrical signal from the routing logic may be converted to an optical signal by a transmitter 7, switched through one of the switches X1-X4, and output as an optical signal through one of the optical fibers 4-6.

Regarding claims 10 and 27, McGuire discloses that the optical switch logic is operably coupled (again, via transmitters 7) to receive the outgoing digitally formatted information from the routing logic and output an outgoing optical data stream to the outgoing optical fiber over the outgoing optical interface.

Regarding claims 11 and 28, McGuire discloses that the optical switching logic comprises an optical transmitter 7 operably coupled to receive the outgoing digitally formatted information from the routing logic and produce the outgoing optical data stream from the digitally formatted information at a predetermined wavelength (column 1, lines 63-67; column 2, lines 1-2).

Regarding claims 14 and 31, McGuire discloses that wherein the optical switching logic further comprises:

an optical switch (such as one of switches X1-X4) operably coupled to receive the outgoing optical data stream from the optical transmitter 7; and

a multiplexer (one of combiners 9-11) operably coupled to receive the outgoing optical data stream from the optical switch and add the outgoing data stream to the outgoing optical fiber over the outgoing optical interface.

Regarding claims 15 and 32 , McGuire discloses that the optical switch comprises an optical add/drop fabric (transmitters 7 and photodetectors 8 add and drop optical signals respectively).

Regarding claims 16 and 33, McGuire discloses that the optical switching logic further comprises a combiner (one of elements 9-11) operably coupled to receive the outgoing optical data stream from the optical transmitter and add the outgoing optical data stream to the outgoing optical fiber over the outgoing optical interface.

Regarding claims 17 and 34, McGuire discloses that the networking device/system is an optical switch router.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 6, 12, 13, 23, 29, 30, and 35-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGuire.

Regarding claims 6 and 23, McGuire discloses a networking device or system as discussed above with regard to claims 3 and 20 but does not specifically disclose that the optical switch comprises an optical drop-only fabric. However, McGuire does disclose that the optical switch may drop signals as well as add signals. It would have been obvious to a person of ordinary skill in the art to specifically have a drop-only fabric in the system disclosed by

McGuire simply as an engineering design choice to save costs and reduce complexity if the network the system was used in did not require adding signals.

Regarding claims 12, 13, 29, and 30, McGuire discloses a networking device or system as discussed above with regard to claims 11 and 28. McGuire further discloses that the transmitters 7 in Figure 1 produce an outgoing optical data stream at a predetermined wavelength (column 1, lines 63-67; column 2, lines 1-2) but does not specifically disclose that the transmitters of the system shown in Figure 1 comprise fixed wavelength or tunable lasers. However, it is well known in the art that fixed wavelength lasers may be used in an optical transmitter to generate optical data signals, and it is also well known in the art that tunable lasers may be used instead in order to provide a more flexible system, as McGuire already suggests ((in the context of a different embodiment of the system; column 4, lines 18-27). It would have been obvious to a person of ordinary skill in the art to use either fixed wavelength or tunable lasers, suggested by McGuire, as the transmitters in the system of Figure 1 disclosed by McGuire, as an engineering design choice of a way to provide the optical data signals McGuire already discloses.

Regarding claim 35, McGuire discloses a device (Figure 1) comprising:

a router interface (transmitters 7 and photodetectors 8); and

optical switching logic (including switches X1-X4) operably coupled to receive an incoming optical data stream from an incoming optical fiber (such as fibers 1-3) over an incoming optical interface and selectively pass the incoming optical data stream through to an outgoing optical fiber (such as fibers 4-6) over an outgoing optical interface or divert the incoming optical data stream over the router interface (photodetectors 8) for processing by routing logic. McGuire discloses that electrical signals may be processed in a lower layer of the

system and may be transmitted to or received from the optical layer as necessary (column 1, lines 10-67; column 2, lines 1-9).

McGuire does not specifically disclose that the device may be an optical line card, but such cards are well known in the art as a type of hardware for provide switching and routing functions. It would have been obvious to a person of ordinary skill in the art to specifically manufacture the system disclosed by McGuire as an optical line card in order to allow it to be used in existing network hardware arrangements.

Regarding claim 36, McGuire discloses that the optical switching logic comprises a demultiplexer (Figure 1 shows that the input fibers 1-3 are connected to splitters and filters F1-F4 that demultiplex the signals) operably coupled to demultiplex the incoming optical data stream from a number of incoming optical data streams received from the incoming optical fiber over the incoming optical interface.

Regarding claim 37, McGuire discloses that the optical switching logic further comprises an optical switch (such as optical switches X1-X4) operably coupled to receive the incoming optical data stream from the demultiplexer and to selectively pass the incoming optical data stream through to the outgoing optical fiber over the outgoing optical interface (to one of fibers 4-6) or divert the incoming optical data stream over the router interface (i.e., photodetector 8) for processing by the routing logic.

Regarding claim 38,, McGuire discloses that the optical switch comprises an optical add/drop fabric. (transmitters 7 and photodetectors 8 add and drop optical signals respectively).

Regarding claim 39, McGuire does not specifically disclose that the optical switch comprises an optical drop-only fabric. However, McGuire does disclose that the optical switch

may drop signals as well as add signals. It would have been obvious to a person of ordinary skill in the art to specifically have a drop-only fabric in the system disclosed by McGuire simply as an engineering design choice to save costs and reduce complexity if the network the system was used in did not require adding signals.

Regarding claim 40, McGuire discloses that the optical switching logic further comprises an optical receiver (photodetector 8) operably coupled to receive the diverted incoming optical data stream from the optical switch and convert the diverted incoming optical data stream into incoming digitally formatted information for processing by the routing logic.

Regarding claim 41, McGuire discloses that the routing logic is operably coupled to receive the incoming digitally formatted information from the optical receiver 8 and route the incoming digitally formatted information based upon a routing mechanism (column 1, lines 10-67; column 2, lines 1-9).

Regarding claim 42, McGuire discloses that the optical switching logic is operably coupled to receive outgoing digitally formatted information from the routing logic over the router interface (i.e., transmitter 7) and output an outgoing optical data stream to the outgoing optical fiber over the outgoing optical interface (column 1, lines 63-67; column 2, lines 1-2).

Regarding claim 43, McGuire discloses that the optical switching logic comprises an optical transmitter 7 operably coupled to receive outgoing digitally formatted information from the routing logic over the router interface and produce the outgoing optical data stream from the digitally formatted information at a predetermined wavelength (column 1, lines 63-67; column 2, lines 1-2).

Regarding claims 44 and 45, McGuire discloses that the transmitters 7 in Figure 1 produce an outgoing optical data stream at a predetermined wavelength (column 1, lines 63-67; column 2, lines 1-2) but does not specifically disclose that the transmitters of the system shown in Figure 1 comprise fixed wavelength or tunable lasers. However, it is well known in the art that fixed wavelength lasers may be used in an optical transmitter to generate optical data signals, and it is also well known in the art that tunable lasers may be used instead in order to provide a more flexible system, as McGuire already suggests ((in the context of a different embodiment of the system; column 4, lines 18-27). It would have been obvious to a person of ordinary skill in the art to use either fixed wavelength or tunable lasers, suggested by McGuire, as the transmitters in the system of Figure 1 disclosed by McGuire, as an engineering design choice of a way to provide the optical data signals McGuire already discloses.

Regarding claim 46, McGuire discloses that wherein the optical switching logic further comprises:

an optical switch (such as one of switches X1-X4) operably coupled to receive the outgoing optical data stream from the optical transmitter 7; and

a multiplexer (one of combiners 9-11) operably coupled to receive the outgoing optical data stream from the optical switch and add the outgoing data stream to the outgoing optical fiber over the outgoing optical interface.

Regarding claim 47, McGuire discloses that the optical switch comprises an optical add/drop fabric (transmitters 7 and photodetectors 8 add and drop optical signals respectively).

Regarding claim 48, McGuire discloses that the optical switching logic further comprises a combiner (one of elements 9-11) operably coupled to receive the outgoing optical data stream

from the optical transmitter and add the outgoing optical data stream to the outgoing optical fiber over the outgoing optical interface.

Regarding claim 49, McGuire does not specifically disclose that the optical interfaces in the system disclosed in Figure 1 are on an optical physical card but again, such cards are well known in the art as a way to provide interfaces that are easy to remove or replace, as McGuire already suggests (in the context of a different embodiment of the system; column 6, lines 22-37). It would have been obvious to a person of ordinary skill in the art to include an optical physical card as suggested by McGuire in the system disclosed by McGuire in Figure 1 as a known hardware device for providing optical input and output, and to further include an interface for the switching device already disclosed by McGuire so that it would be able to communicate with the optical physical card.

Regarding claim 50, McGuire discloses a method for communication in an optical communication system, the method comprising:

receiving an optical data stream (at input fibers 1-3 or from transmitters 7)

terminating the optical data stream (by dropping the optical signals at photodetectors 8); and

routing the data using a predetermined routing mechanism (column 1, lines 10-67; column 2, lines 1-9).

McGuire does not specifically disclose multicasting. However, it is common knowledge that in an optical communication system such as disclosed by McGuire, an input may be routed (i.e., multicast) to multiple outputs as required by users. It would also be well understood in the art that the system disclosed by McGuire in Figure 1 includes tunable filters F1-F4 that may

allow a signal from one input enter the switches at multiple ports (if multiple filters were tuned to pass the same wavelength) and therefore be outputted to multiple outputs as desired. It would have been obvious to a person of ordinary skill in the art to specifically include multicast traffic in the system disclosed by McGuire simply in order to communicate a signal from one input to multiple destinations.

Regarding claim 51, McGuire discloses that receiving the optical data stream comprises receiving the optical data stream over an incoming optical fiber (one of fibers 1-3).

Regarding claim 52, McGuire discloses that terminating the optical data stream comprises:

dropping the optical data stream from the incoming optical fiber (by outputting the data stream from port "h" of one of the switches X1-X4); and

converting the data from an optical form into a digital form suitable for routing (using photodetector 8).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 703-605-1186. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

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